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Knowledge-Based Economies and Education: A Grand Canyon Analogy

By Colleen Mahy and Tyler Krimmel

Expeditions inspire people to reach beyond themselves. Today, post-secondary education requires as much planning as any expedition.

However, there has been a trend that has seen just over half of all high school students in Ontario[1] going on to post-secondary education. While some people have barely noticed this statistic, the OECD has released a projection that has many in business, education and government paying attention: more than 70% of all jobs in 2012 will require post-secondary education[2]. Certainly, jobs that have decent pay, security and flexibility will demand post-secondary education. Daily we are reminded that manufacturing jobs, those with high wages and good benefits, are no longer a main stay in the Canadian economy. Times have changed; the economic reality for this year's graduates bares no resemblance to the reality of their parents. The equipment, planning and perseverance required for this new expedition demands the attention of all involved in the future of our economy: we must communicate this economic reality and plan for the new expedition that, our students must take if they are to succeed. This new expedition is not without its challenges, but as with all expeditions, education's rewards open us to universes yet unseen.

Where Is Here?

2008 is the 40th anniversary of the College System in Ontario. The College System was an innovation in the minds of educators who saw that the current system—high schools and universities—no longer suited the economic health or the public aspirations of Ontario. We needed 'a third way'. And so, the college system was developed to bridge the gap and prepare individuals for trades and a new, more technologically driven, service-oriented economy. We would encourage more advanced training in our apprenticed trades; we would develop human resource managers, financial advisors, early-childhood education specialists. Colleges would offer training for people who would enhance the accessibility and overall performance of a service-based economy.

Today, given global economic pressures, we must evaluate our post-secondary education vision and ensure that our graduates are positioned so that they see opportunities and can project how new economic opportunities will be developed. The Pathways to Prosperity Report (2006) states that more that 70% of future jobs will require post-secondary education in Ontario. Current high school graduation

rates are at 73% (2006-2007 rate was released in February, 2008 and the graduation rate was up to 75%), but only 52% of all high school graduates on Ontario enroll in post-secondary institution and even fewer, 41% of all high school graduates, actually graduate from a post-secondary institution. The dramatic gap between educational requirements for future jobs and current levels of educational achievement can only be seen as deeply troubling. Clearly, we have failed to communicate the immediate necessity of post-secondary education in a globally competitive economy.

Knowing What We Know

The OECD Report on Knowledge-Based Economies defines the problem facing most developed nations: we have wage-bases that far exceed the actual value of the manufactured products that we produce. The globalization of the economy—out-sourcing, worker migration and technology has meant that manufacturing jobs have all but disappeared from the North American/G8 economic landscape. In order to maintain our standard of living, North American companies have moved into areas of knowledge-based economies. Canadians have become recognized leaders in the development of Early Childhood Education programs and the organization and development of banking systems, both examples illustrate the type of activity in a successful knowledge-based economy.

The OECD defines knowledge workers as those who do not engage in the output of physical products. These are the “employees most in demand in a wide range of activities, from computer technicians, through physical therapists to marketing specialists.” How do we anticipate what skills which will be in greatest demand by those knowledge workers, and how do we develop those skills? Clearly, as the report outlines, “know-how: capability to do something … and know-who: information about who knows what and who knows how to do what” have become the way in which North American/G8 economies must focus their energies. Merely knowing what (facts) or knowing why (principles of laws and nature; specialized organizations) are insufficient to move our economy forward.

However, the reality is that our current education system is invested in the ‘whats’ (content) and the ‘whys’ (outcome-based learning). Consequently, most students still perceive ‘going to school’ as learning what and learning why. This model of education stems from a manufacturing-based mentality which represented the economic reality of the first half of the twentieth century. It has long since been seen as an outdated model in economics; it needs to be seen as an outdated model in education. Educators have seen the advent of technology and its ability transform the learning landscape: we now must see how preparing students who live in this technologically-driven, global economy must develop their critical and creative skills in order to perceive the new opportunities on the economic horizon.

However, North America's continued ability to dominant by retaining the knowledge-base suitable to sustain a knowledge-based economy has also begun to shift, and shift at a relatively rapid pace. It is generally accepted that in some industries, a quarter to half of all jobs are likely to migrate to the developing industrial-economic superpowers of China and India. The general perception has been that post-secondary education in North America will provide learners with certain intellectual capital, capital which would not be challenged by the likes of the lesser-educated, lower skilled workers. The reality is that in the coming year, India and China will combine to produce nearly 6.5 million university graduates, all of whom will speak English. Furthermore, of those nearly 6.5 million graduates, nearly one million of them will be engineering graduates. It is also worth mentioning at this point that Canada's current productivity growth record has been "mediocre at best", when compared with productivity and innovation standards globally. In fact, for decades there has been awareness of the lack of drawing power by Canadian companies to effectively source managers and staff with the capabilities, experience, and entrepreneurial ability to compete in markets characterized by rapid innovation. While still recognized, and rightfully so, as a world leader in producing ideas, building systems, and modeling excellence, Canada will soon face global challenges to these cornerstones that weave the knowledge-based fabric of our economic certainty.

Recognizing Our Students Today

To begin to see how those students who attend college perceive the importance of education for their future success, we undertook a small sample survey of students enrolled in the first and second-year General Arts and Science Program at George Brown College. While the survey is not intended to represent all college students, it does point to some interesting trends, and it also confirmed some of the statistics from the reports already discussed. The survey (voluntary participation) was carried out in October, 2007 and represents only those students in the first year and second year of the Program.[5] Students enroll in General Arts and Science for a variety of reasons: some have not achieved the necessary average to continue their studies; some are missing high school requirements needed to continue; some are returning to school after having entered the workforce.

The following is an abridged set of responses to the statistically-based questions:

1. Did you go directly to post-secondary education? Yes: 45% No: 55%

2. What is the biggest barrier for high school students entering post-secondary education? Financial Issues: 17; Lack of Interest: 14; Lack of Information: 18; Anxiety of New Environment: 4. (As a percentage, student responses that indicate 60% feel a lack of connection (to education, its

purpose).

3. Of the respondents who did not go directly to post-secondary education, 50% (14 out of 28) were out of the educational system for 1.5 - 5 years.

We also asked students to respond anecdotally to two particular questions:

1. Did you decide to return to school for a specific reason? If yes, state your reason.

2. What would you identify as the barrier that you experienced concerning attending a post-secondary institution after high school?

Students provided insight into the state in which many students today may, in fact, see themselves. Certainly, decision making about career plans, types of jobs and "what am I going to do" has never been more open, unknown or complex. Following are some representative student responses to question #1 above:

1. "I wanted to continue my education and take it further. Also because I wanted to being my life, and career opportunities."

2. "I returned because I got sick of where I was headed. I was stuck in a dead end job, and I was getting nowhere fast. Opportunity was calling me back."

3. "I didn't want to make minimum wage for the rest of my life working dead end jobs. I wasn't being challenged enough."

4. "I felt it was necessary to help me to secure a better job. It would also help me to communicate better. I would also like to continue/further my education."

5. I wanted to interact with individuals who had similar goals to myself. I wanted to expand on my own knowledge. I wanted to gain further experience to create more job opportunities."

What is clear from these responses is both the felt and identified need for post-secondary education and the frustration with the lack of job opportunities without post-secondary training. These anecdotal comments point to a desire on the part of students to engage in the education required to participate in the new economic reality which has already arrived.

Anecdotal responses to question #2 address the barriers that prevented these students from moving on to post-secondary education directly after high school.

1. "Too much career choice and too little information about them."

2. “My barrier was not knowing what I wanted to do for sure.”

3. “Lack of interest.”

4. “I wasn’t mentally ready. I did not fully understand, at the time, what school had to offer for me. I needed time to think and experience something other than school.”

5. “I didn’t know what really interested me.”

Lack of information about careers and types of programs offered at colleges have contributed to students’ lack of interest in continuing their education. Seemingly, there is no ‘connection’ to education for students once they have completed their legally required time in high school. What is missing for these students was an avenue, a guide, a link between who they were and who they wanted to become. Education was seen as an end-point and not as a process that invited future opportunities. Students need to be able to “see themselves in a new reality” and in order to do so, they must be given the opportunity to design and self-select how they are going to build their skills for future success. Clear educational paths with ample choices and divergent trails invite students to explore disciplines and connect with others to develop new ideas, strategies and solutions.

A Geographic Analogy of Current Post-Secondary Education

What has been missing from discussions concerning the ‘lack of communication’ and ‘lack of connectedness’ is a image that can focus the issues. With so many different issues and investors in the education process, an analogy offers the possibility to look at the whole, rather than constantly examining each piece without recognizing its place in the integrated whole.

A ‘Grand’ Analogy

Post-secondary education used to translate directly into a profession or a specific career field. It was accepted that by taking a program at a college or university, a person would enter a specific sector of the economy: manufacturing, hospitality, health, education, engineering, technology, law. Today, this is not the case for most students: The river landscape has altered and what was once a stream with two banks is now a deep canyon with impressive and imposing mountainous walls. However, we must remember that this erosion—caused by the combined effect of international competition, increased levels of education, and highly-skilled workers immigrating – did not occur in the past five years. This shift in the landscape has taken the last fifty years and economists, businesses and educators have all watched the erosion take place. But, like erosion, unless it is directly underfoot, the small shifts are imperceptible until a major shift occurs and then restructuring is not an option but a necessity. The reality is the landscape now demands a new set of navigational tools

which would allow students and institutions to communicate across this divide and toward a successful economic future.

This separation or rift has created a barrier between prospective high school students and the post-secondary institution. On one side of the canyon exists the potential student who is looking across the canyon to the institution in but has no idea of what tools will be needed to cross the canyon or even why crossing the canyon would be a good idea. The view might be the same! On the other side, post-secondary institutions are looking across at the students, but they have no idea why the students are not hiking, climbing, rafting or moving in any way to get to their side of the canyon. Colleges and universities have sent out brochures and letters; they have web-sites and yet, given the looming economic reality, not enough students are taking on the expedition of post-secondary education.

Ontario Colleges have urged governments to increase both funding and awareness to support the growth of full-time college enrollment province wide by 20% within the next three years. The introduction of first-generation student projects,[6] high-school–college–work programs[7] which support the Learning to 18 Strategy[8]. These initiatives are projected to help meet the new Ontario Ministry of Education graduate rate target of 85% (just over a 10% increase in its current rate of 74%).[9] In March/April 2008, a 'modestly' visible province-wide advertising campaign was aimed at potential students to increase their awareness of options beyond "university, only".

From our limited survey, it was clear that students needed more information and more guidance about their futures, how to navigate this post-secondary education canyon. There is an undeniable pressure on students to "choose a career". The current emphasis on the First Generation Student Programs, Dual Credit Programs and Learning to 18 all point to an institutional recognition of the importance of engaging more students in post-secondary education.

Students feel they are caught between "I don't know what I want to do" and "I am not sure what will be there (job?) when I finish". Students need to develop a level of self-awareness about who they are and what they want in the world. But in order to develop this level of self-awareness, students require time to explore possibilities and options without the pressure to commit to any one career path.

Colleges feel the pressure to develop programs with courses that will give students the skills to obtain successful jobs. The pressure lies in designing programs which will be taken in the present and will allow students to compete in the future. But, the economic landscape is changing. Students know the landscape is changing: the institutions know the landscape is changing. Colleges, all post-secondary education institutions, must consider how to build in creative, critical thinking skills so that students experience a synergistic environment that not only meets changes, but anticipates and engages in innovative change. We must look across the canyon

and see the wind currents; and we must recognize that by riding the wind currents we can soar, over, above and beyond the canyon walls.

Endnotes

1. Ontario Ministry of Education. (2006). Ontario Graduation Rate Statistics. Toronto: Government of Ontario.

2. “The Knowledge-Based Economy.” (1996), excerpted from 1996 Science, Technology and Industry Outlook. Paris: Organization for Economic Co-operation and Development.

3. Morley, R. (2006, February) “The Death of American Manufacturing.” The Philadelphia Trumpet, 17(2).

4. McFetridge, D. G. (2008, April). “Innovation and the Productivity Problem, Any Solutions?” Institute for Research on Public Policy, 14 (3). Vol. 14, no. 3.

5. Mahy, C. (2007, October). “Communicating in a New Reality: Bridging the Transition from High School to College: GAS Student Survey.”

6. First Generation Student Projects are an initiative of the Ministry of Training Colleges and Universities to assist in the transition of students whose parents have not attended post-secondary education.

7. The School College Work Initiative (2007) targets specific high schools and develops activity/course/program links to specific college programs.

8. Learning to 18 is an Ontario government initiative that requires students to stay in some form of education until age 18. The program includes increased links to upgrading of skills (literacy and numeracy) as well as more ‘co-op’ options in which students work and gain credits for their work.

9. Ministry of Education: Student Success/Learning to 18 Graduation Goal. (2008).

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